

**REMARKS**

Claims 1-38 were pending in this application.

Claims 1-16, 18-26, and 28-38 have been rejected.

Claims 17 and 27 have been objected to.

Claims 1-11, 13-17, 20-30, and 32-36 have been amended as shown above.

Claims 12 and 31 have been cancelled.

Claims 39 and 40 have been added.

Claims 1-11, 13-30, and 32-40 are now pending in this application.

The Applicant respectfully requests reconsideration and full allowance of Claims 1-11, 13-30, and 32-40.

**I. STATUS OF CLAIMS**

The Office Action indicates that Claims 17 and 27 would be allowable if rewritten in independent form. However, the elements noted in the Office Action are recited in Claims 17 and 36. Claim 27 does not contain the elements noted in the Office Action. The Applicant believes the Patent Office intended to object to Claims 17 and 36 as being allowable if rewritten in independent form. If the Applicant's understanding is incorrect, the Applicant respectfully requests clarification in the next Official communication.

**II. OBJECTION TO OATH/DECLARATION**

The Office Action objects to the Declaration because it lacks the inventor's citizenship.

The Applicant's representative has attempted to provide a substitute Declaration to the inventor. The Applicant's representative will provide the substitute Declaration to the Patent Office upon its receipt from the inventor.

### **III. OBJECTIONS TO CLAIMS**

The Office Action objects to Claims 1, 6, 17, 20, 25, and 36 because of various informalities and antecedent basis problems. The Applicant has amended the claims to correct the informalities and antecedent basis problems noted in the Office Action. Accordingly, the Applicant respectfully requests withdrawal of the objections to the claims.

### **IV. REJECTIONS UNDER 35 U.S.C. § 102**

The Office Action rejects Claims 1-4, 9-12, 20-24, and 29-32 under 35 U.S.C. § 102(a) or § 102(e) as being anticipated by U.S. Patent No. 6,493,856 to Usami et al. ("*Usami*"). The Office Action rejects Claims 1-16, 18-26, and 28-38 under 35 U.S.C. § 102(a) or § 102(e) as being anticipated by U.S. Patent No. 6,427,226 to Mallick et al. ("*Mallick*"). The Office Action rejects Claims 1-16, 18-26, and 28-38 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,272,668 to Teene ("*Teene*"). These rejections are respectfully traversed.

A prior art reference anticipates a claimed invention under 35 U.S.C. § 102 only if every element of the claimed invention is identically shown in that single reference, arranged as they are in the claims. (*MPEP* § 2131; *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990)). Anticipation is only shown where each and every limitation of the claimed

invention is found in a single prior art reference. (*MPEP* § 2131; *In re Donohue*, 766 F.2d 531, 534, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985)).

The Applicant has amended Claims 1 and 20 to recite “identifying cells occurring on paths for which timing targets are not met,” where the “paths for which timing targets are not met” belong to “a first set of paths.” The Applicant has also amended Claims 1 and 20 to recite that the “first set of paths” is determined from “a second set of paths,” and the “second set of paths is changed to include an increased number of paths” if the “paths for which timing targets are not met” number less than a “specified number of paths.”

These elements are supported in the originally-filed specification. The specification states that a “predetermined number (x) of slowest paths” are reported. (*Application*, Page 5, Lines 24-30). In one embodiment, a maximum of one path (such as the path with the “worst timing”) is reported for each endpoint in a design. (*Application*, Page 5, Lines 25-29). The “timing” of each reported path is examined to determine if that path exceeds a “maximum time allowed.” (*Application*, Page 6, Lines 14-18). Paths that exceed the maximum time are analyzed, and one or more cells in those paths are “upgraded.” (*Application*, Page 6, Line 20 – Page 7, Line 21). At some point, the number of paths that exceed the maximum time may be less than the “predetermined number (x).” (*Application*, Page 10, Lines 12-14). If this occurs, the maximum number of paths reported for each endpoint may be increased. (*Application*, Page 10, Lines 19-20). For example, a maximum of three paths could be reported for each endpoint, rather than a maximum of one path per endpoint. (*Application*, Page 10, Lines 20-30).

In this example, the “first set of paths” recited in Claims 1 and 20 may be represented by

the “predetermined number (x) of slowest paths” that are reported. Also, in this example, the “second set of paths” recited in Claims 1 and 20 may be represented (i) initially by a group of paths that include a single path (the path having the worst timing) per endpoint, and (ii) subsequently by a group of paths that include more than one path (multiple paths having the worst timing) per endpoint.

These portions of the specification are cited merely to indicate that Claims 1 and 20 are supported by the originally-filed specification as requested in the Office Action. These portions of the specification represent one possible non-limiting embodiment of Claims 1 and 20. These portions of the specification are not cited here to limit Claims 1 and 20 to a specific embodiment.

None of the cited references anticipate these elements of Claims 1 and 20.

*Usami* recites identifying a path having a “timing violation” and replacing “H-Vth cells” in the path with “MT cells.” (*Col. 5, Lines 13-25; Col. 6, Lines 56-64*). *Usami* also recites that “MT cells” in paths without timing violations may be replaced with “H-Vth cells.” (*Col. 6, Lines 65-67; Col. 7, Lines 19-21*).

*Usami* lacks any mention that a path with a timing violation belongs to a “first set of paths” determined from a “second set of paths,” where the “second set of paths is changed to include an increased number of paths” if the number of paths with a timing violation is “less than a specified number of paths.” As a result, *Usami* fails to anticipate all elements of Claims 1 and 20 (and their dependent claims).

*Mallick* recites analyzing a timing database and selecting a subset of paths with the worst timing violations. (*Col. 6, Lines 16-21*). “Pins” in the subset of paths are then analyzed, and

transistors associated with the pins are replaced in order to reduce or eliminate the timing violations. (*Col. 6, Line 47 – Col. 7, Line 67*). *Mallick* also recites that the timing database may be filtered to include or remove paths from the subset. (*Col. 8, Lines 25-50*).

*Mallick* simply recites that a subset of paths may be selected from a database, and certain paths may be included or excluded from the subset using filtering. *Mallick* lacks any mention that the subset of paths represents paths belonging to a “first set of paths” determined from a “second set of paths,” where the “second set of paths is changed to include an increased number of paths” if the number of paths with timing violations is “less than a specified number of paths.” As a result, *Mallick* fails to anticipate all elements of Claims 1 and 20 (and their dependent claims).

*Teene* recites analyzing the signal timing for interconnection paths in an ASIC layout and replacing components to improve the timing. (*Col. 5, Lines 11-32*). *Teene* analyzes every path in the ASIC rather than requiring a designer to specify the paths, although the designer can override default values used by the system and identify critical paths. (*Col. 5, Lines 40-57*).

*Teene* lacks any mention of analyzing paths that belong to a “first set of paths” determined from a “second set of paths,” where the “second set of paths is changed to include an increased number of paths” if the number of paths with timing violations is “less than a specified number of paths.” As a result, *Teene* fails to anticipate all elements of Claims 1 and 20 (and their dependent claims).

For these reasons, the cited references fail to anticipate the Applicant’s invention as recited in Claims 1 and 20 (and their dependent claims). Accordingly, the Applicant respectfully

requests withdrawal of the § 102 rejection and full allowance of Claims 1-11, 13-30, and 32-38.

**V. NEW CLAIMS**

The Applicant has added new Claims 39 and 40. The Applicant respectfully submits that no new matter has been added. The Applicant respectfully requests entry and full allowance of Claims 39 and 40.

**VI. CONCLUSION**

The Applicant respectfully asserts that all pending claims in this application are in condition for allowance and respectfully requests full allowance of the claims.

SUMMARY

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Applicant respectfully invites the Examiner to contact the undersigned attorney at the telephone number indicated below or at *wmunck@davismunck.com*.


The Commissioner is hereby authorized to charge any fees connected with this communication (including any extension of time fee) or credit any overpayment to Davis Munck Deposit Account No. 50-0208.

Respectfully submitted,

DAVIS MUNCK, P.C.

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P.O. Drawer 800889  
Dallas, Texas 75380  
Phone: (972) 628-3600  
Fax: (972) 628-3616  
E-mail: *wmunck@davismunck.com*

  
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William A. Munck  
Registration No. 39,308